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Application No. 10/606,724  
Reply to Office Action of October 13, 2006**JAN 12 2007****Remarks**

By this Amendment, Claims 1-20 are pending in this application. Claim 20 is new. One independent claim over three has been added and the \$200 fee under 37 C.F.R. §1.16(h) is attached herewith. There are 20 total claims, therefore no additional claim fees for total claims is necessary. However, if any additional claim fees are required, the Examiner is hereby authorized to charge any needed claim fees which may be required for this Response, or credit any overpayment to Deposit Account No. 18-1722.

**Drawings**

The Examiner objected to the drawings under 37 C.F.R. §1.83(a). The Examiner states that the digital quadrature mix for filtering and decimation-by-two must be shown or the feature canceled from the claims. The Examiner further states that the digital quadrature mix 25 in Figure 1 does not show filtering and decimation as stated in claims 1 and 12. Applicant refers the Examiner to Figure 2 that clearly shows as stated by claim 1 "a digital quadrature mix for performing real-to-complex conversion, filtering, and decimation-by-two of the parallel single-bit samples" as shown as reference number 25. Therefore, Applicant respectfully traverses the Examiner's objection and respectfully requests the Examiner withdrawn the objection.

**Claim Rejections - 35 USC § 103(a)**

Claims 1-5, 7-16, 18, and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Loseke (U.S. Patent 6,449,244) in view of McLaughlin et. al. (McLaughlin) (U.S. Pat. No. 6,442,216) and further in view of Schuurmans (U.S. Pat. No. 7,709,061). The Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the one-bit A/D converter of Schuurmans into the apparatus of the combination of Loseke and McLaughlin.

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The Federal Circuit has stated that when more than one reference or source of prior art is required in establishing the obviousness rejection, "it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification." *In re Lahu*, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984). The Examiner has the burden to explain why the prior art would appear to show the claimed subject matter and not simply the general aspects of the invention, which requires that the reference teachings "appear to have suggested the claimed subject matter." *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976).

Further, the Federal Circuit has added that when more than one reference or source of prior art is required in establishing the obviousness rejection, "it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification", and thus it is not enough that the Examiner present references that contain the assorted features of the invention. *In re Lahu*, 747 F.2d 703, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984). See also *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). The Examiner must also show why it "would appear" that the references would have been combined. See *In re Friich*, 972 F.2d 1260, 1265, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1984). The Examiner must make all of the showings detailed in this paragraph in order to make a *prima facie* case of obviousness. The discussion below details how this burden has not been met.

Examiner's rejection of claims 1-5, 7-16, 18, and 19 is improper. The Examiner has not carried the burden of showing that one skilled in the art would be motivated to combine the cited references to produce the invention of claims 1-5, 7-16, 18, and 19. The Examiner has not shown that one skilled in the art would be motivated to combine Loseke with any teachings from McLaughlin and Schuurmans.

Loseke discloses a methodology to adapt a multi-rate processing

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algorithm and channel spacing of an existing channelizer design for implementation of orthogonal narrowband channels of different input data rates and input channel group bandwidths. McLaughlin discloses a digital demodulator that can accept the I and Q signals and optimally decode the data at different baud rates. Schuurmans discloses a multi-bit Sigma Delta A/D converter which is relatively compact, simple, and which has a relative high bandwidth and high SNR. There is no suggestion in any of the references that they be combined in the manner suggested by the Examiner or any manner at all. Absent such a suggestion, a person skilled in the art who was looking for a solution to the problem of developing a channelizer architecture for implementation of orthogonal narrowband channels of *different input data rates* and input channel group bandwidths as exhibited by Loseke would hardly be disposed on any objective basis, to consider references like McLaughlin and Schuurmans, which are not only unconcerned with implementation of orthogonal narrowband channels of different input data rates at all, but which show absolutely no recognition of the problem of reconfiguring or adapting a channelizer, let alone any structure that would avoid or solve it.

Moreover, the structure that would result from the Examiner's proposed combination does not meet the terms of claim 1. Such claim recites "a digital quadrature mix for performing real-to-complex conversion, filtering, and ***decimation-by-two of the parallel single-bit samples*** from the serial-to-parallel converter and for providing parallel in-phase (I) and quadrature (Q) output values". By contrast the combination suggested by the Examiner would teach away from the present invention in that McLaughlin discloses that the output IF signal is broken into parallel branches where each branch includes a respective conventional down sampler stage where each down sampler stage has a different decimation value (e.g., 2, 4, 8, etc.). See McLaughlin Col. 3, lines 30-41. Therefore, as stated before the combination would teach away from the present invention by requiring that signal be broken up into parallel branches where each branch would have a different decimation value at the down sampler

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stage. Therefore, the combination that would result would lack "a digital quadrature mix for performing real-to-complex conversion, filtering, and **decimation-by-two of the parallel single-bit samples** from the serial-to-parallel converter and for providing parallel in-phase (I) and quadrature (Q) output values." Thus, claim 1 is patentably distinct from the combination of Loseke, McLaughlin, and Schuurmans.

Claims 1-5 depend from allowable base claim 1, therefore claims 1-5 are patentably distinct from the combination of Loseke, McLaughlin, and Schuurmans.

At least similar arguments to those made above can be made for claims 7-16, 18, and 19, therefore, claims 7-16, 18, and 19 are patentably distinct from the combination of Loseke, McLaughlin, and Schuurmans.

The Federal Circuit has often observed that Section 103 speaks in terms of the time the invention was made, for it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," see *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873, 228 U.S.P.Q. 90, 98 (Fed. Cir. 1985), (overruled on other grounds by *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 46 U.S.P.Q.2d 1097 (Fed. Cir. 1998)). One must be wary of falling into the trap of hindsight reasoning, using the inventor's patent application as a guide and glue for the selection and combination of references or pieces of references that themselves contain no reason or suggestion for their combination.

An excellent summary of the law by the Federal Circuit is found in *In re Dembiczak*, 175 F.3d 994, 998, 50 U.S.P.Q.2d 1614, 1616 (Fed. Cir. 1999), from which we quote at length below:

Our analysis begins in the text of section 103 quoted above, with the phrase "at the time the invention was made". For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," see *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873, 228 U.S.P.Q. 90, 98 (Fed. Cir. 1985) (overruled on other grounds by *Nobelpharma AB v. Implant Innovations, Inc.* 141 F.3d 1059, 46 U.S.P.Q.2d 1097 (Fed. Cir. 1998)), when analyzing the patentability of claims pursuant to that section. Measuring a claimed invention against the standard established by section

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103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See, e.g., *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher."

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q.2d 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically. . . the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch*, 972 F.2d 1260, 1265, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 U.S.P.Q. 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). See also *Graham*, 383 U.S. at 18, 148 U.S.P.Q. at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventors disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight. See e.g., *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 U.S.P.Q. 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.") In this case, the Board fell into the hindsight trap.

See also M.P.E.P. 2143.01.

Applicant asks, why would one only use a small part of the teaching of McLaughlin and Schuurmans, ignoring the rest, in seeking to combine Loeseke

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with McLaughlin and Schuurmans? The only teaching that supports this increasingly strained combination is the applicant's specification. The Federal Circuit and the MPEP § 2143.01 specifically reject this use of the specification.

***Allowable Subject Matter***

Applicant thanks the Examiner for the allowance of claims 6 and 17. New claim 20 contains at least similar elements to claims 6 and 17, therefore claim 20 is also believed to be allowable.

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**Conclusion**

In light of the forgoing, reconsideration and allowance of the claims is earnestly solicited. While it is believed that no extension of time is necessary, the Commissioner is hereby authorized to grant any needed extension of time and to charge any additional fees which may be required for this Response, or credit any overpayment to Deposit Account No. 18-1722. If the Examiner feels that prosecution of present application would be assisted by a telephone interview, applicant encourages the Examiner to contact the applicant at the telephone number listed below.

Respectfully submitted,  
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Dated:

1/12/07

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